Cerebral injury following cardiac surgery continues to be a significant source of morbidity and mortality. Brain injury is now the most feared complication of coronary artery bypass grafting. A spectrum of injuries ranging from subtle neurocognitive dysfunction to fatal strokes is caused by a complex series of multifactorial mechanisms.

While overt neurological dysfunction occurs in 3% of patients, subtle impairment of higher cognitive function is common. Detailed cognitive assessment, using a battery of tests, shows some impairment in as many as 80% of patients at the time they are discharged from hospital, which persists in around a quarter of them at six months.

Recently neurocognitive impairment early after surgery has been shown to correlate with both late decline and impaired measures of quality of life. Although cognitive impairment is often “subclinical,” the patients may complain of loss of memory, impaired concentration, or “just not being the same,” or their relatives may notice these changes.

Cognitive studies are concerned with the mind and intelligence. The term cognition (Latin: cognoscere, "to know") is used in several loosely related ways to refer to a processing of information, applying knowledge and changing preferences.

Several protective strategies to the brain have been tried with variable success. It can be stated that the magic bullet in brain protection has not yet been identified.

However interventions dealing with the etiologic factors of brain injury have showed best results. Therefore a shield is may be found where bullets are unavailable.